

REMARKS

Claims 1-4, 7-11, 13-17, and 19-31 are pending in the application, claims 5, 6, 12, and 18 being canceled and claims 30 and 31 being newly added herein. Claim 1 is the only independent claim.

Claim Objections

Claims 1-29 were objected to on account of the misspelling of the word "leveling."

Claims 3, 8, 9, and 10 have been amended herein to correct to misspelling noted by the Examiner.

Claims Rejections - 35 U.S.C. § 112

Claim 9 stands rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The Examiner specifically maintains that the phrase "the shaft two spring means" in line 17 on page 20 (claim 9) has insufficient antecedent basis in the claim.

In response to this rejection under 35 U.S.C. § 112, second paragraph, claim 9 has been amended herein to move the phrase "two spring means" to a point earlier in claim 9, thereby eliminating ambiguity caused by its original placement.

Claims Rejections - 35 U.S.C. §§ 102 and 103

Claims 1-4, 10-18, 20, 21, 24-26, 28, and 29 stand rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 4,988,192 to Knittel.

Claims 5, 91, and 22 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Knittel.

Claims 6 and 7 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Knittel in view of U.S. Patent No. 4,973,158 to Marsh.

Claims 8 and 9 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Knittel in view of U.S. Patent No. 6,011,613 to Ohtomo et al.

Claim 23 also stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Knittel in view of Ohtomo et al.

Claim 27 also stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Knittel in view of Ohtomo et al.

Claim 1 Applicant has amended claim 1 herein to provide a better definition of the invention. In particular, applicant has amended claim 1 to incorporate certain limitations from claims 5 and 6, which have been canceled. To the extent that the rejection of claims 5 and 6 under 35 U.S.C. § 103(a) applies to amended claim 1, applicant respectfully traverses the Examiner's rejection and contends that claim 1 as amended distinguishes over the prior art and particularly over the teachings and implications of Knittel, whether considered along or in combination with one or more other prior art references such as Marsh.

As recited in amended claim 1, a laser level apparatus includes body means, platform means supported by the body means and selectively pivotable about a first axis, and drive means supported by in the platform means and selectively pivotable about a second axis transverse to the first axis. The drive means includes an electric motor a rotor of which is coaxial with a third axis transverse to the second axis. The rotor has two axial electrical conductors insulated one from the other. The rotor exhibits a first rotatable or rotary electrical connection and a second rotatable or rotary electrical connection each electrically connected with a respective one of the two axial electrical conductors. A head is supported on a rotatable shaft coaxial with and connected to the rotor, the head being adapted to be selectively rotated by the drive means about a the third axis. A laser is supported within the head to selectively project laser radiation from the head transverse the third axis. The laser includes a semiconductor laser electrically connected to the two axial electrical conductors and adapted to produce the laser radiation. An electrical power source and control is connected to the first and second

rotatable electrical connectors to selectively supply electrical power to the semiconductor laser and the electric motor.

Thus, claim 1 has been amended to incorporate *inter alia* the limitation of claim 5 specifying that the laser is situated within the head means. The Examiner had indicated that the claim language of claim 1 "fails to disclose how the laser is supported by the head means". It is submitted that the amendment to claim 1 that the laser is "supported within" the head means distinguishes over Knittel. This results in a laser level arrangement whereby the laser is supported in a rotatable housing, with the advantages of direct laser transmission rather than having a prism within the rotating housing to direct a rotating laser beam where the laser is held stationary within the housing (13). One particular disadvantage of the Knittel arrangement is that the two components (laser and prism) require optical precision in their relative positioning to effect a precise laser emission, whereas the present invention requires less precision. The direction of the laser emission can be adjusted by colimating means effected directly on the laser.

It is further submitted that while Knittel refers to a motor there is no indication of quite how the motor held within housing (13) is set up to drive the head (42).

The present amendment to claim 1 further defines that rotatable or rotary electrical connections are connected with the rotor, which has two axial conductors insulated one from the other to carry power to both the motor, the laser and the control means. It is submitted that there is no disclosure of such an arrangement in Knittel. The Knittel document discloses rotatable electrical contacts via the tilt axis bearings (11, 11'), and there is no requirement to supply power to the rotating prism (38) because that is an optical director and requires no power, whereas the instant invention does require transmission of power to the head means to power the laser.

Accordingly, it would not have been obvious to one of ordinary skill in the art to modify the apparatus of Knittel to provide electrical conductors and rotary power contacts or connections because there is no reason to provide power to the rotating head.

The prior art particularly Knittel does not disclose or suggest disposition of a laser source within a rotating head of a leveling assembly.

It is noted further that the provision of a rotatable shaft co-axial with the rotor of electric motor connected to the head provides considerably greater control over the degree of rotation of the head and that is in contrast whether either a belt or gear connection is provided between the motor and the head and control is important where angular or other measurement should be as precise as possible. It is not clear what drive arrangement is in place in Knittel.

It is submitted further that providing the laser within the head results in a simplified arrangement over the apparatus of Knittel in that the criticality of the arrangement between the laser and the prisms is obviated. The applicant has also devised an easy-to-use collimation arrangement whereby the criticality of placement of the laser within the head is also to some extent obviated. Claim 22 addresses that collimation arrangement. Thus the front or the rear of the laser is held in place by a resilient support, which means that adjustment is required only at either the rear or the front of the laser (opposite to where the resilient support is in place). This adjustment arrangement comprising a resilient support and an adjustment spaced from the resilient support is believed not to be disclosed or suggested in either Knittel or Marsh, and accordingly is submitted to be non-obvious.

Insofar as claim 1 includes the features of old claim 6 it is submitted that there is combination of power transmission not shown or suggested by either Knittel or Marsh, whether those references are considered individually or collectively. Those references do not suggest the provision of a rotor having the two axial electrical conductors insulated one from the other or that these conductors are connected with rotatable or rotary electrical connections, as set forth in amended claim 1. Furthermore, claim 1 as amended herein recites that the rotor of the motor and the rotatable shaft are co-axial. It is not

apparent how two conducting wires shown in Marsh could function as conductors in such an arrangement.

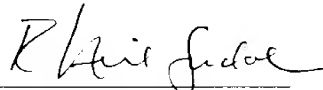
Conclusion

For the foregoing reasons, independent claim 1, as well as the claims dependent therefrom, is deemed to be in condition for allowance. An early Notice to that effect is earnestly solicited.

Should the Examiner believe that direct contact with applicant's attorney would advance the prosecution of this application, the Examiner is invited to telephone the undersigned at the number below.

Respectfully submitted,

COLEMAN SUDOL SAPONE, P.C.

By: 

R. Neil Sudol

Reg. No. 31,669

714 Colorado Avenue
Bridgeport, CT 066-05-1601
(203) 366-3560

Dated: September 26, 2003